Project Definition

High Level Description

- AirLift or HMS (Height Maintenance System).
- The AirLift keeps itself at a desired height using a propeller. When it is pushed downward, pulled upward, or has weight added to it, it will change its speed to get back to the original desired height.

Purpose

- The AirLift is a small piece to understanding the complexities that are required to build a drone. One of the biggest issues with making a drone is keeping the drone stable in the air while also moving. We are limiting the scope of the drone to simply stay hovering and be able to go up and down on one axis depending on outside forces. With the outside forces, it will know how to respond in order to get back to the same height it was hovering at originally.

Communication

- Github Repository
- The Logbook
- The Design Decisions
- Block Diagram

Objectives

- The AirLift is meant to be a more accessible dumbwaiter that is smaller and cheaper.
- ??descriptions??
- ??drawings??
- ??brochure??
- ??models??

Project Definition

Scenario

User Interaction Stories

- ??unboxing??
- ??configuring??
- ??using??
- ??troubleshooting??
- ??passive/active interaction??
- ??servicing??

User Interface

- There is going to be a display that lets the user know data about the height of the propeller and the displacement that it is affecting.
- The AirLift would have two buttons for the user. One of the buttons would turn the prototype on or off. The other would keep the propeller on standby or turn it on and rise to the “equilibrium” point.

User Acceptance

- Given-When-Then Criteria
    - Given: Some external force
    - When: The external force causes a change in height of the propeller
    - Then: Propeller will change its motor speed to get back to the "equilibrium" point
- If the propeller always ends up at the same “equilibrium” point, it means that the purpose is being accomplished.

Project Definition

Parameters

Technical

- The shape of the AirLift will be a rectangular prism. The dimensions will be 6” x 6” x 18”.
- The weight is around 15 lbs.
- ??protection??

Functions

- The core function of the AirLift is to

Operational

- ??restrictions??
- ??duty cycle??

Environment

- ??temperatures??
- ??hazards??
- ??ingress??
- ??power??

Key Concerns

- ??most important??
- ??set-in-stone parameters??

Future

Project Definition

- ??plans??
- ??ideas??

Glossary

- ??common vocabulary??
- Equilibrium Point - The starting height that the propeller will stay at and will always to to get to when outside forces are put onto it.